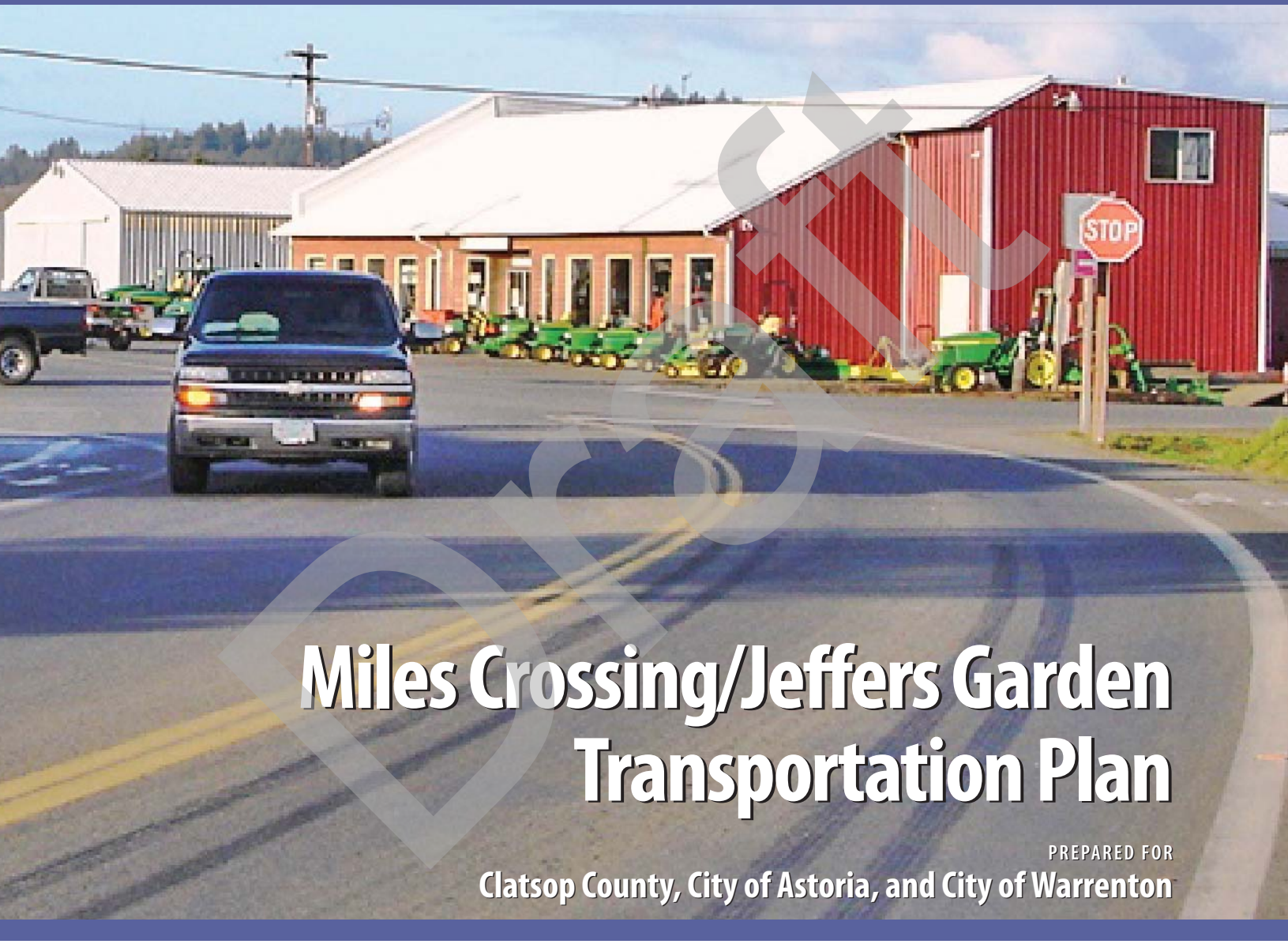

Miles Crossing/Jeffers Garden Transportation Plan

PREPARED FOR

Clatsop County, City of Astoria, and City of Warrenton

Oregon Department of Transportation

CH2MHILL

Kittelson & Associates, Inc.
Transportation Engineering/Planning

Angelo planning group

TB022009005PDX

MAY 2009

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1 INTRODUCTION

The Miles Crossing/Jeffers Garden Transportation Plan identifies ways to balance the needs of local residents, long-distance travelers, bicyclists, pedestrians, and freight along US 101 Business through the unincorporated rural communities of Miles Crossing and Jeffers Garden, given expected land use development in the area. This plan was led by the Oregon Department of Transportation (ODOT) and Clatsop County, in coordination with the cities of Warrenton and Astoria.

The objectives of the Miles Crossing/Jeffers Garden Transportation Plan are to:

- Identify highway and intersection improvements to allow local and regional through traffic to flow smoothly along US 101 Business
- Develop ways to improve safety for and encourage more bicycle and pedestrian travel
- Consider potential road connections to serve future development
- Explore potential access management measures to improve safety and protect the capacity of US 101 Business
- Develop potential safety and design improvements at the Miles Crossing intersection, the OR 202/US 101 Business intersection, the Old Youngs Bay and Lewis and Clark bridge areas, and along US 101 Business.

The Miles Crossing and Jeffers Garden rural communities are located in the northwest corner of Clatsop County. US 101 Business enters Miles Crossing from the north, curves to the west at the Miles Crossing intersection and then continues through Jeffers Garden. This segment of US 101 Business, classified by ODOT as a District Highway, serves as an alternate to US 101 and the New Youngs Bay Bridge between Astoria and Warrenton. The land use and zoning in the Miles Crossing/Jeffers Garden rural community is primarily single-family residential with commercial and light industrial uses and zoning fronting portions of US 101 Business. Logging trucks and other large vehicles use US 101 Business to access Astoria and Warrenton.

The study area, shown in Figure 1, generally includes US 101 Business between the Lewis and Clark and Old Youngs Bay Bridges. However, the study area extends west of the Lewis and Clark Bridge to include the intersection of US 101 Business and Airport Road in Warrenton, and it also extends north of the Old Youngs Bay Bridge to include the intersection of US 101 Business and OR 202 in Astoria.

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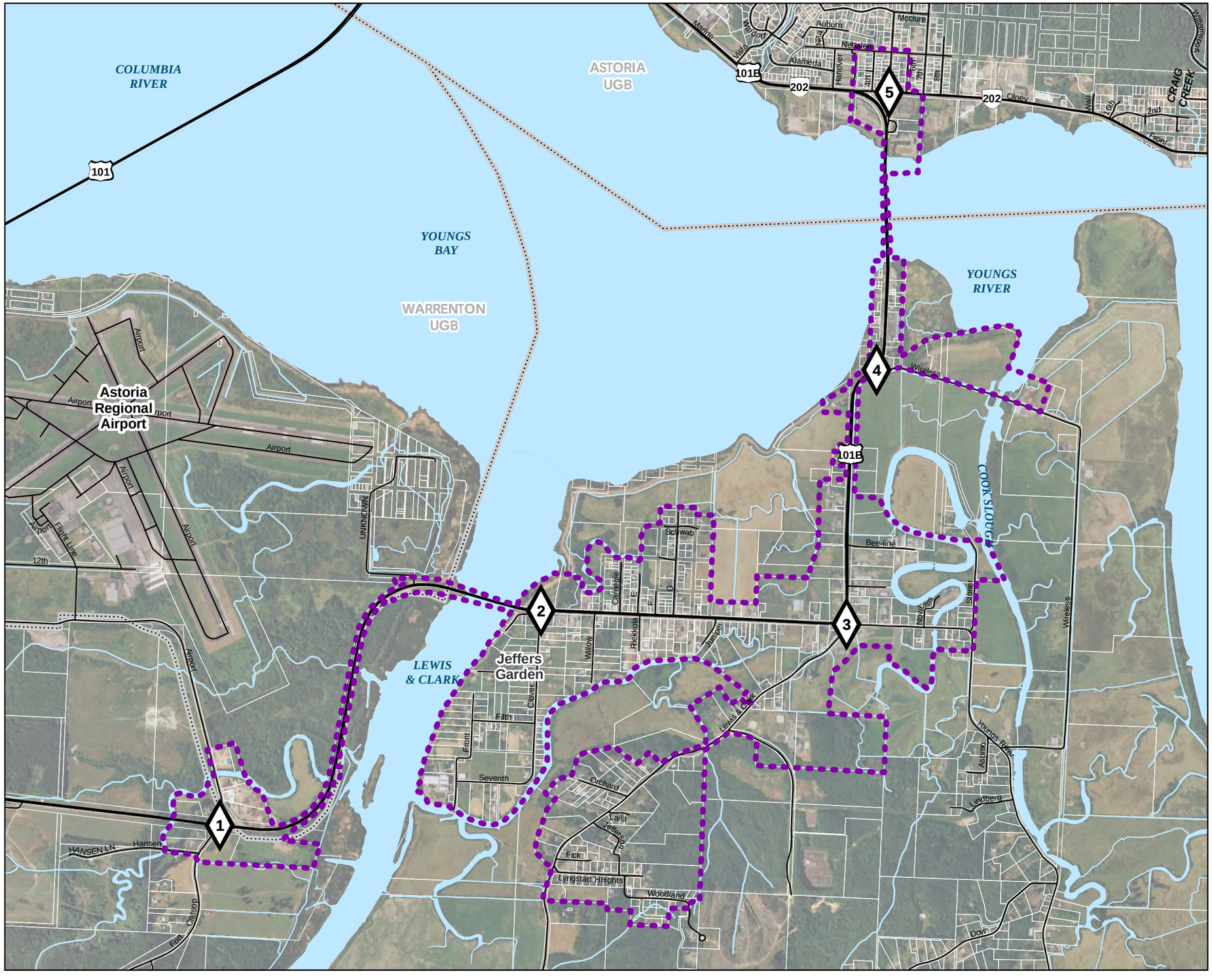

LEGEND

- Study Intersections
- Study Area Boundary
- UGB Boundary
- Water Bodies

Study Intersections

1. **US101 Business & Fort Clatsop Road / Airport Lane**
2. **US101 Business & Clover Lane**
3. **US101 Business & Youngs River Road / Lewis and Clark Road**
4. **US101 Business & Wireless Road**
5. **OR 202 & US 101 Business**

Notes:

Aerial photo from 2007:

May not reflect current development

1. Local Roads, Hydrography and Parks from Clatsop County (4/2008)
2. Taxlot Boundaries from Clatsop County (9/2007)
2. Highway Data from ODOT (4/2008)
2. UGB Boundary from ODOT (1/1996)

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FIGURE 1
Study Area Map
Miles Crossing/Jeffers Garden Transportation Plan

2 PLANNING PROCESS

This section describes the five elements of the project's planning process: project management; public involvement; goals and evaluation criteria; existing and future traffic conditions analysis; and development and evaluation of alternatives.

Project Management

A project management team (PMT) consisting of staff from the Cities of Astoria and Warrenton, Clatsop County, the Department of Land Conservation and Development (DLCD) and ODOT provided guidance and policy direction for this plan. The PMT reviewed and provided comments on all technical materials, participated in advisory committee meetings and public workshops, and met with community members as needed to discuss elements of this plan. Two PMT meetings were held as part of this process—one in September 2008 and the second in December 2008. Agendas and summaries for these meetings can be found in Appendix A, Public Involvement.

Public Involvement

Miles Crossing and Jeffers Garden community members, stakeholders, and other interested parties actively participated in the development of this plan. A Project Advisory Committee (PAC) made up of local residents, business owners, and public officials met twice, in September 2008 and again in January 2009, to provide input on the project needs, existing conditions and deficiencies, possible transportation improvements, and to recommend project improvements. Two public workshops were held at the Lewis and Clark Elementary School in the study area (October 2008 and January 2009) that allowed substantial input and feedback from the public.

Project background information, the project schedule, open house announcements, along with meeting summaries and technical materials were all available on a project website (www.oregon.gov/ODOT/HWY/REGION2/MilesCrossingJeffersGarden.shtml). Public comments were also collected via phone conversations, targeted outreach to affected property and business owners, and email. Documentation of the public involvement process is included in Appendix A, Public Involvement.

Evaluation Framework

The project team developed evaluation criteria for the project based on input from the PMT and PAC. The goals and evaluation criteria are provided in Table 1. They establish a framework to assure that the plan responds to the goals and desires of the community. The draft alternatives were developed to address and were subsequently evaluated by these criteria.

TABLE 1
Alternative Evaluation Criteria

Criterion	Objective	Performance Measure
Connectivity	Improve street and path connectivity	Out-of-direction travel, travel time, access to local and regional destinations
	Create an interconnected local street system that provides the opportunity for off-highway local circulation.	Change in trip travel distance along US 101 Business, access to local and regional destinations
Safety	Address known safety issues	Ability to address or divert traffic away from known safety concerns.
	Reduce potential conflicts between vehicles, and between vehicles and bicyclists and/or pedestrians	Width of approaches, number of potential conflict points
	Maintain the structural integrity of the Lewis and Clark and Old Youngs Bay bridges	Address identified structural deficiencies on the Lewis and Clark and Old Youngs Bay bridges
Mobility	Maintain local and regional through traffic mobility	Volume-to-capacity ratio (mobility), vehicle delay
Constructability	Cost effectiveness	Assessment of cost efficiencies during construction; comparison of project alternative with other projects in the area for funding competitiveness
	Construction methods	Ability of the concept to be built in phases, ability to use existing pavement, impacts during construction.
Environmental Impacts	Minimize impacts to natural environmental resources	Wetland impacts, encroachment on known fish habitat, impact to identified threatened and endangered species habitat
	Minimize impacts to built environment resources	Number of businesses and residences impacted, ability to appropriately mitigate impacts
Quality of Life	Maintain consistency with the Miles Crossing/Jeffers Garden Rural Community Plan	Qualitative assessment of projected future development compared to the Rural Community Plan goals.
	Maintain livability	Local business redevelopment potential, and support from the majority of the community.
	Obtain buy-in and support from local community and region	Qualitative assessment of likelihood of project to garner support from the local community and region
Multimodal Solutions	Address needs of bicyclists and pedestrians	Qualitative assessment of alternative's provision of services to users of all modes, improvements to bicycle and pedestrian facilities, and improvements geared toward future transit routes.
	Address needs of public transit users	

Existing Conditions and Deficiencies

Prior to the first PAC meeting, the project team reviewed and documented existing and future conditions on US 101 Business within the study area, identifying issues that would serve as the basis for the evaluation framework and development of alternatives. A review of relevant area plans and

policies is included as Appendix B, Plan and Policy Review. A full summary of existing and future conditions is included as Appendix C, Traffic Methodology, Existing and Future Conditions. Key findings are below:

- There are narrow shoulders, no sidewalks, and no bicycle facilities along US 101 Business. Throughout the study area, the roadway shoulder serves as the pedestrian and bicycle facility, but shoulder widths are inconsistent. Parking is not allowed along US 101 Business; however, vehicles regularly park illegally on the shoulder (Exhibit 1). Pedestrians use dirt paths and gravel shoulders throughout the two communities.

EXHIBIT 1
View of US 101 Business Facing West

- During peak travel periods, vehicles back up in intersections, creating delays and safety issues at two study area intersections. Specifically, vehicles traveling north through the Miles Crossing intersection, vehicles turning south onto US 101 Business from OR 202, and vehicles continuing south from OR 202 onto US 101 Business through the intersection north of the bridge back up onto the highway and create potential safety issues.
- Analysis of crashes in the study area did not identify a specific safety problem, though sight distance is inadequate in several areas, and potential safety issues were identified during conversations with the public at all study intersections, especially at the US 101 Business/OR 202 intersection.
- Connectivity is limited throughout the study area; residents need to use US 101 Business for short local trips.
- Driveway spacing in the study area, especially along the east-west section of US 101 Business, do not meet ODOT access spacing standards. There are a number of very wide driveways and parcels with multiple driveways, which affects safety (Exhibit 2).

EXHIBIT 2
Example of Wide Driveways and Uncontrolled Access along US 101 Business

- Travel lanes on both the Lewis and Clark River and Old Youngs Bay bridges are too narrow for large vehicles to pass each other in opposite directions. Vertical rises in the middle of both bridges restrict the ability for drivers to see oncoming traffic. This is particularly problematic when two trucks are approaching at the same time and one must yield due to the narrow lanes.
- The sufficiency rating for the Old Youngs Bay Bridge (Exhibit 3) is 42.1 out of 100. Bridges with a sufficiency rating less than 50 are considered deficient. The sufficiency rating for the Lewis and Clark River Bridge (Exhibit 4) is just above the threshold, at 51.6[1]. The PAC and public cited frequent crashes or near misses on or near the bridges. The summary of bridge condition is documented as Appendix D, Bridge Condition.

EXHIBIT 3
Old Youngs Bay Bridge

[1] From ODOT Bridge Inspection reports conducted in October 2007

EXHIBIT 4
Lewis and Clark River Bridge

Future Traffic Conditions and Deficiencies

Projected traffic conditions for the year 2030 were analyzed assuming no changes would be made to the roadway system to help identify projects that would help meet the future travel needs in the study area. The review of future traffic conditions can be found in Appendix C, Traffic Methodology, Existing, and Future Conditions. The analysis of future traffic conditions included three separate growth scenarios:

1. Expected level of development with no changes to the transportation network;
2. Higher than expected level of development with no changes to the transportation network[2]; and
3. Expected level of development under a scenario where US 101 or the New Youngs Bay Bridge is closed between Astoria and Warrenton.

Key findings of the 2030 future conditions analysis were as follows:

- Traffic stopped near the intersection remains a concern at both the Miles Crossing and the OR 202/US 101 Business intersections. In scenarios 1 and 2, current problems will continue to be safety hazards, and the US 101 Business and OR 202 intersection will have vehicles backed up into the next intersection. In addition to the existing problems, the Miles Crossing intersection will have vehicles back up into the roadway on three legs.
- The OR 202/US 101 Business intersection is congested and does not meet ODOT mobility standards.
- Under the high growth scenario (Scenario 2), the US 101 Business/Airport Road intersection is congested and does not meet ODOT mobility standards.
- In Scenario 3, all intersections fail mobility standards from highly congested conditions and long backups. Traffic demand will exceed the capacity of the travel lanes. It was determined that this

[2] Scenario 2 assumed a full build-out of available land to the capacity of the new water and sewer systems.

plan would not use scenario 3 to create alternatives because a New Youngs Bay Bridge and US 101 closure is not expected to be a regular occurrence. This plan focuses on addressing expected growth scenarios, and recognizes that in the event of a closure on US 101 or the New Youngs Bay Bridge that there is no way to avoid severe congestion, and therefore the alternatives do not address the scenario.

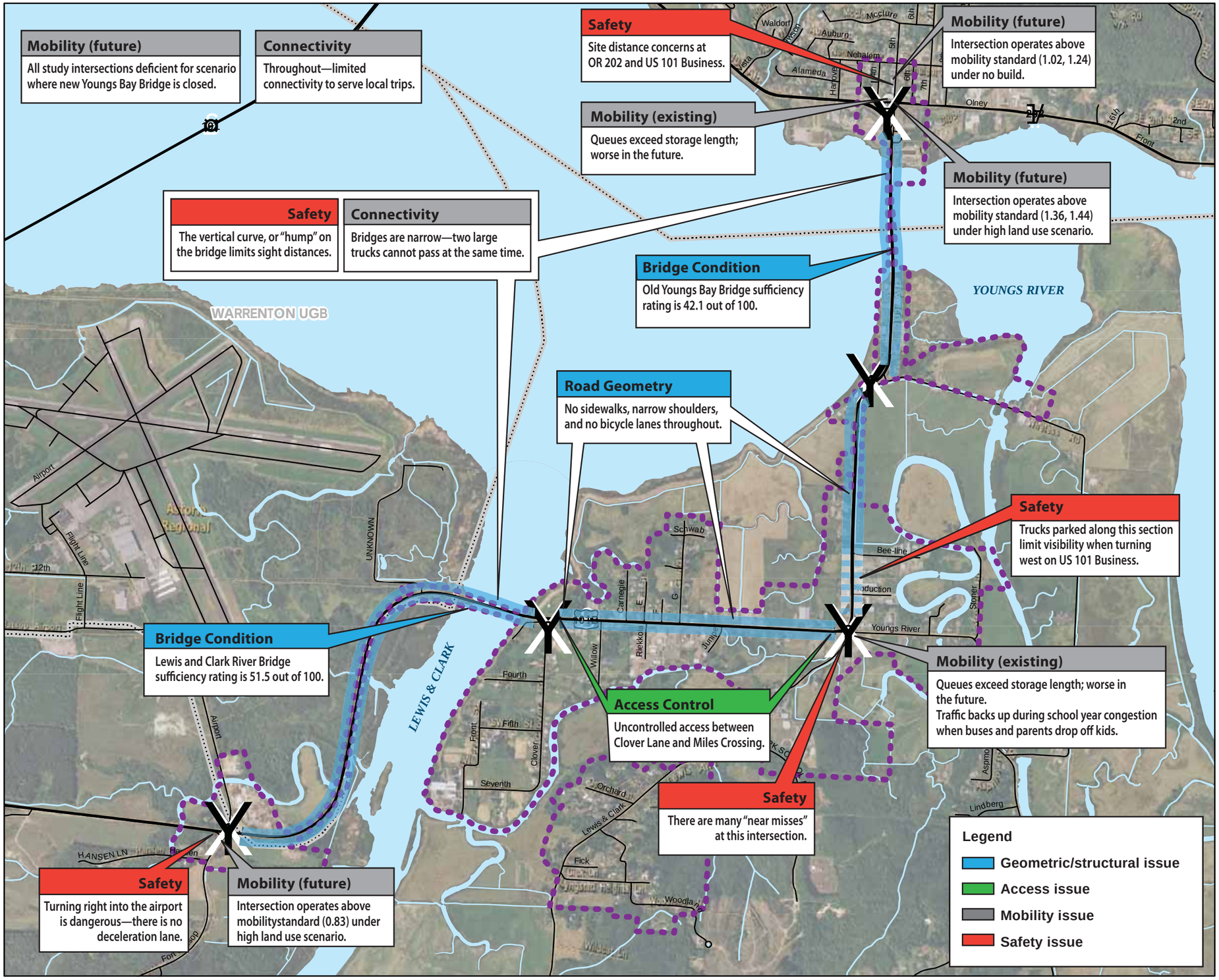
The basis of the first PMT, PAC, and public meetings were to review and discuss existing and expected future conditions for the study area, and identify issues related to traffic, circulation, access, and safety. Personal experience was also gathered on existing conditions to supplement the technical analysis.

Figure 2 shows an overview of project needs identified through the technical analysis and conversations with the PMT, PAC and public.

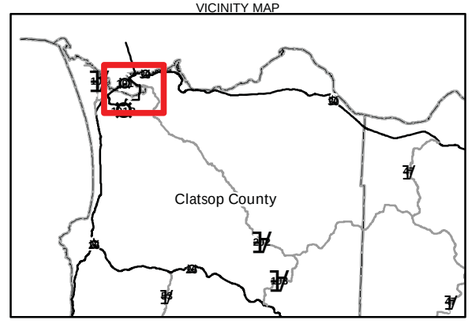
Development and Evaluation of Alternatives

Following the first PMT, PAC, and public meetings, the project team developed alternatives to respond to the project needs, purpose and goals. This process is documented as Appendix E, Alternatives Development and Evaluation. Key steps in the alternatives development process were as follows:

1. Develop a range of alternatives that seek to meet project goals and evaluation criteria, incorporating input from the project team, the PAC (September 2008), and the public (October 2008).
2. Evaluate each potential improvement to illustrate how it addresses each project goal.
3. Present draft alternatives to ODOT, Clatsop County, the City of Astoria, and the City of Warrenton for review against adopted state and county policies and standards (December 2008); revise draft alternatives to respond to comments.
4. Present draft and preferred alternatives to the PAC and the public (January 2009).
5. Incorporate feedback from the PAC and public workshop into the recommended alternatives.



VICINITY MAP



LEGEND

- Study Intersections
- Study Area Boundary
- UGB Boundary
- Water Bodies

Study Intersections

1. US101 Business & Fort Clatsop Road / Airport Lane
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FIGURE 2
Project Needs Map
Miles Crossing/Jeffers Garden Transportation Plan

3 RECOMMENDATIONS

The Miles Crossing/Jeffers Garden Transportation Plan recommendations are organized into four sections: (1) US 101 Business cross sections; (2) study area intersections; (3) access management strategies; and (4) local connectivity recommendations. An overview of recommended improvement concepts are illustrated in Figure 3. Conceptual designs of each of the proposed improvements are included at the end of this plan.

US 101 Business Cross Section

For the improvement development process, US 101 Business was divided into two sections: north-south and east-west. The north-south section extends from the Miles Crossing intersection north to the Old Youngs Bay Bridge, and the east-west section extends from the Miles Crossing intersection west to the Lewis and Clark Bridge. The north-south section is currently more rural in character with fewer businesses and residences along the highway, while the east-west section has a more commercial feel, with many of the area's businesses. Alternatives for these two sections were evaluated separately, however, the same cross section was ultimately recommended for both segments.

The PMT at the onset of the project determined that US 101 Business would remain a District Highway and that a change in designation to an expressway would not be considered. Keeping US 101 Business as a District Highway balances mobility, access, and capacity, rather than focusing on only mobility along US 101 Business through the study area.

RECOMMENDATION: THREE-LANE TRADITIONAL CROSS SECTION

For both sections of US 101 Business, the recommendation is to modify the existing two lane facility to three lanes to accommodate left turns into existing and future businesses. This would be an urban section with curb, gutter, and sidewalk, and an enclosed drainage system. The total cross section would be 62 feet wide and include two 6-foot sidewalks, two 6-foot bike lanes, two 12-foot travel lanes, and a 14-foot center continuous center turn lane (Figure 4). The center turn lane would allow for emergency vehicles to pass vehicles, traffic to move around disabled vehicles, and left turning traffic to maneuver out of the travel lanes. The section was also selected for its ability to improve safety and mobility along US 101 Business, and its provision of separate facilities for both bicyclists and pedestrians, though mobility along the highway in two of the three future scenarios was not an identified need. The curb-gutter-sidewalk cross section would delineate driveways by providing a cut in the curb to allow vehicular access to businesses and residences along the highway. This cross section mainly fits within the available right of way, which is 80 feet. There is one parcel on the east-west section of US 101 Business near the Miles Crossing intersection that narrows the available right of way to approximately 63 feet. In the north-south section, right of way data were not available. Therefore, tax lot data were used to estimate the available right of way and may not accurately reflect the actual right of way available in that section.

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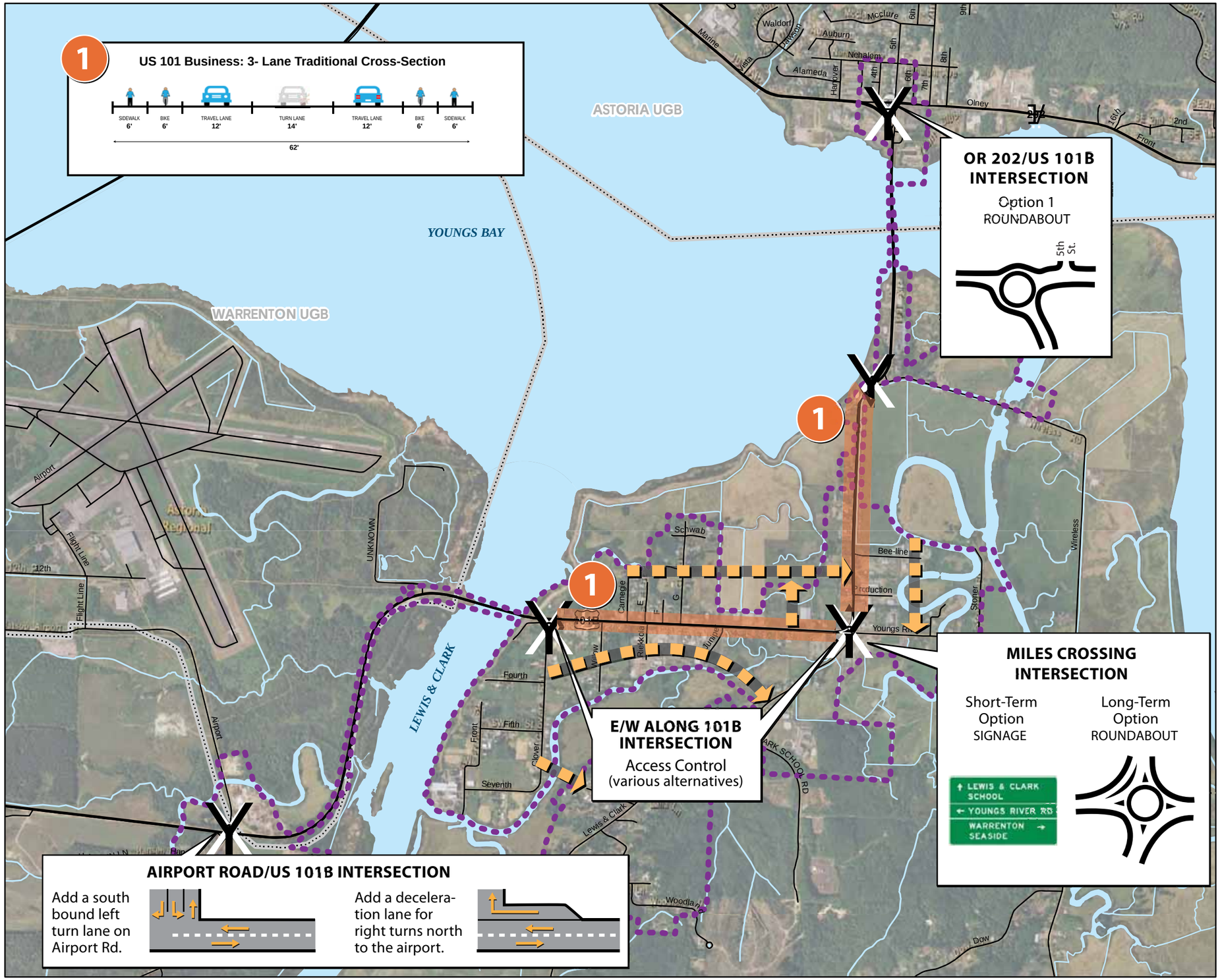
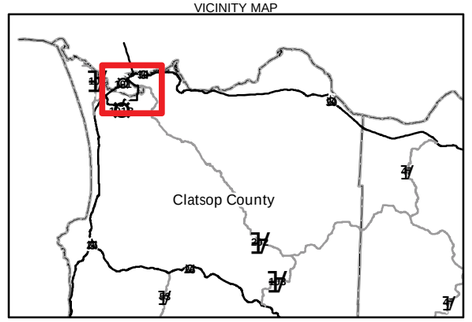


VICINITY MAP



LEGEND

- Study Intersections
- Study Area Boundary
- UGB Boundary
- Water Bodies
- Local Connectivity Alternatives

Study Intersections

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FIGURE 3
Recommended Alternatives Overview
Miles Crossing/Jeffers Garden Transportation Plan

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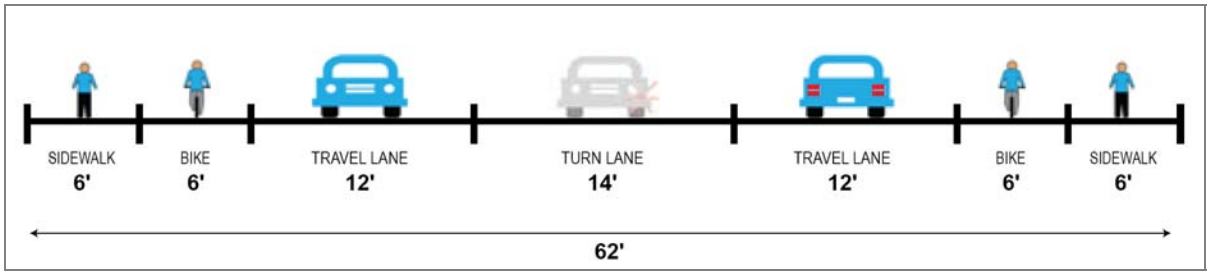
FIGURE 4
Recommended US 101 Business Cross Section



Areas of Concern

While there is adequate right of way along both sections of US 101 Business, currently the road shoulders are used informally and illegally for parking or other frontage. This occurs more often in the commercial east-west section and near the Miles Crossing intersection. Construction of a 62-foot cross section could eliminate these informal uses and locate the roadway closer to businesses and residences along US 101 Business.

On the north-south cross section, the existing roadway is located along a dike and at a different level from the surrounding landscape. Widening the roadway would require additional fill to construct the recommended cross section. This raises concerns for possible increased cost and impacts to wetlands or sensitive lands within the right of way. However, it may be possible to construct the bicycle lane and sidewalk separate from the roadway, at the same level as the surrounding landscape. Wider cross sections also increase the amount of asphalt surface within the right of way, which could increase stormwater runoff.

The cross section assumes an enclosed drainage system consistent with an urban highway section. However the current drainage system is open (Exhibit 5). The highway may be constructed in several sections and implementing an enclosed drainage system piecemeal may cause some concern as it relates to water quality treatment. Clatsop County and ODOT would coordinate about drainage and development in this area to ensure that the section is constructed to water quality standards and requirements.

EXHIBIT 5
View of Current Drainage along the North-South Section of US 101 Business

Cost Estimate

It is expected that the new cross section would be built upon development or redevelopment of adjacent parcels. Table 2 shows the cost by segment for the cross section. Development is expected in the medium term (5-10 years). It is possible that the enclosed drainage system assumed from the highway cross section would be built either prior to the construction of the full highway cross section, or constructed in part upon development.

TABLE 2
Three Lane Traditional Cross Section Cost Estimate

Segment	Estimated Cost (2009$)
North-south cross section	$2.75 million
East-west cross section	$4.04 million
Total	**$6.8 million**

The cost estimate includes curbs, gutters, sidewalks, drainage, adding new roadway, illumination and a five foot average fill depth to widen the roadway along the existing embankment (for the north-south section only). The estimate does not include right-of-way acquisition, environmental permitting, or utility relocation costs.

Study Area Intersections

Improvements are recommended for three of the five study area intersections: Airport Road/Fort Clatsop Road and US 101 Business, the Miles Crossing intersection, and the OR 202/US 101 Business intersection. These recommendations are described below. No changes were deemed necessary at Wireless Road or Clover Lane.

Airport Road/Fort Clatsop Road and US 101 Business

The Airport Road/Fort Clatsop Road and US 101 Business intersection exceeds mobility standards in the future analysis growth scenario 2 (high growth) for southbound left turn movements. Vehicles

turning east onto US 101 Business from Airport Road will back up waiting for a gap in oncoming traffic.

Furthermore, in conversations with the PAC and public during the open houses, an additional potential safety issue was identified at the Airport Road/Fort Clatsop Road and US 101 Business intersection. The speed limit along US 101 Business at the intersection is 55 miles per hour, and vehicles traveling west on US 101 Business and making the right turn onto Airport Road need to slow down considerably to make the sharp turn. This creates a traffic hazard for through vehicles.

Two improvements are recommended at this intersection: A deceleration lane for right turns north to the airport, and a southbound left turn lane from Airport Road to US 101 Business. It is assumed that both of the following alternatives would be implemented at the same time, and the cost estimate includes both components.

Deceleration Lane for Right Turns North to the Airport

The 485 foot deceleration lane would allow westbound through vehicles to maintain highway speeds while allowing turning vehicles to move out of the way. Exhibit 6 shows the existing configuration at the intersection. This concept could be built completely within existing right of way (Figure 5).

EXHIBIT 6
US 101 Business at Airport Road Looking West

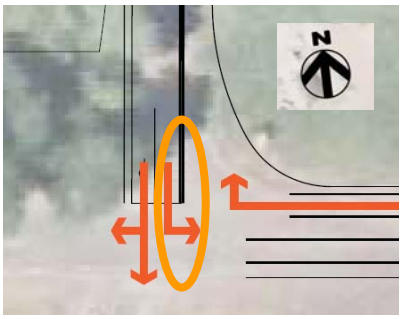
FIGURE 5
Westbound Deceleration Lane for Right Turns to the Airport

Southbound Left-turn Pocket

This concept would add a 150-foot southbound left turn pocket on Airport Road for vehicles turning left towards Miles Crossing and Jeffers Garden. Adding the turn pocket would decrease congestion, improve mobility, and allow left turning vehicles to maneuver out of the through travel lane for vehicles continuing south. Exhibit 7 shows the existing intersection with US 101 Business at Airport Road. This concept is completely within the available right of way (Figure 6).

EXHIBIT 7
Airport Road at US 101 Business Looking South

FIGURE 6
Southbound Left-turn Pocket from Airport Road to US 101 B



Areas of Concern

There are no areas of concern for these two improvements.

Cost Estimate

Table 3 shows the cost estimate for both alternatives.

TABLE 3
Cost Estimate for Airport Road Improvements

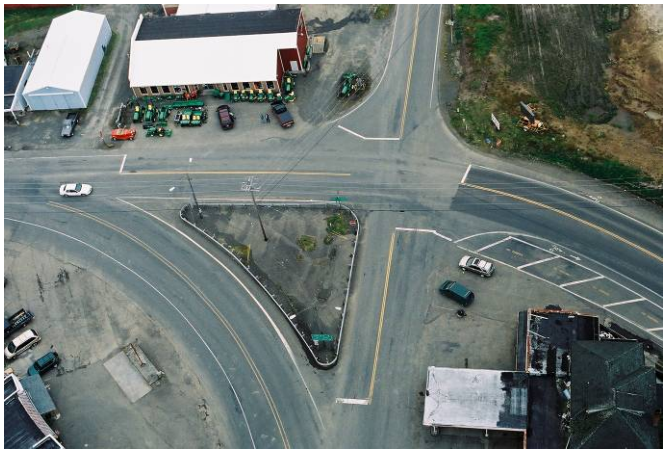
Improvement	Estimated Cost (2009$)
Westbound deceleration Lane	$200,000
Southbound left turn lane	$150,000
Total	**$350,000**

The cost estimate includes road material, aggregate base, embankment, striping and signage improvements, with a 12-foot pavement widening associated with the lane.

Miles Crossing Intersection

Two concepts are recommended by the project team and endorsed by the public for this intersection: improved signage in the short-term, and a roundabout in the long-term. Currently the intersection is free flow for travel along US 101 Business and includes a sharp turn from the east-west alignment of US 101 Business to the North-South alignment. There are stop signs at the Lewis and Clark Road and Youngs River Road intersection. Vehicles continuing east towards Youngs River Road must stop at the intersection of Lewis and Clark Road, and vehicles entering US 101 Business in either direction must stop before entering the highway (Exhibit 8). The current configuration of the intersection is confusing for visitors, and the community noted that congestion at Lewis and Clark Elementary School causes traffic to back up at the intersection. The existing curve requires vehicles to slow, does not meet existing highway design standards, and future mobility standards under all scenarios would not be met.

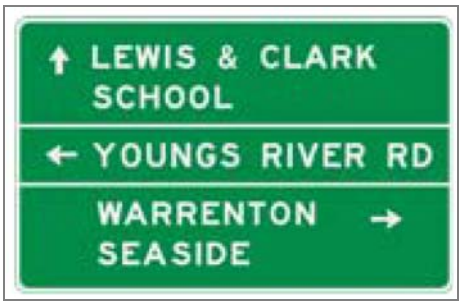
EXHIBIT 8
Miles Crossing Intersection Looking East



IMPROVED SIGNAGE—SHORT-TERM RECOMMENDATION

The community expressed a desire for lower-cost options that could be implemented on a short timeline, and agreed on the benefits of additional signage. The short term recommendation is to improve signage through the intersection area. This would reduce driver confusion and enhance safety for vehicles traveling through the intersection. Currently directional signs for the intersection are located in the middle of the intersection. Additional signage would be located in advance of the intersection to alert drivers of the complex intersection and to reduce confusion for drivers unfamiliar with the area. Figure 7 is an example of a new sign.

FIGURE 7
Example of Additional Signage along US 101 Business



Areas of Concern

The signage option would not address mobility, connectivity, or bicycle and pedestrian facilities in the study area.

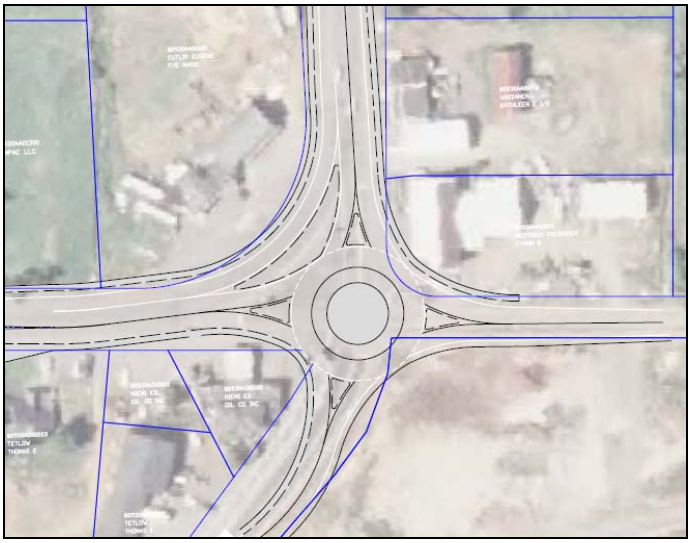
Cost Estimate

Signage for the Miles Crossing intersection is estimated to cost approximately $50,000, which includes signs and posts to replace the existing signs and to add new signs.

ROUNDABOUT—LONG-TERM RECOMMENDATION

The recommended long term solution at Miles Crossing is a roundabout. The roundabout would be a single lane with a slip lane. The slip lane would allow southbound through traffic to continue towards Warrenton without passing through the roundabout. Lewis and Clark Road and Youngs River Road would be slightly realigned (Figure 8). The roundabout's location could be shifted to the east or west of the existing intersection. Figure 8 shows the roundabout shifted to the east. Comments from the public and PAC suggested when funds become available, the design should be refined and affected property owners should be involved to determine the best placement of the roundabout. The benefits of this alternative are increased safety by decreasing vehicle conflict points, alleviated traffic backup issues on US 101 Business, and decreased vehicle travel speed at the intersection, which reduces the severity of any conflicts that do occur. The roundabout improves mobility for traffic

FIGURE 8
Roundabout at Miles Crossing (one of two conceptual alignments developed)



along Lewis and Clark and Youngs River Roads, and accommodates bus and freight traffic. The roundabout could also be a "gateway" feature to enhance the center of the community.

Areas of Concern

The roundabout could potentially displace one business, and access to businesses near the intersection could be adversely impacted. However, as stated previously, the location for the roundabout is flexible. Two concepts were developed for the roundabout, each showing a separate business displacement. The design and size of the roundabout was minimized to avoid or reduce property impacts. Further refinement is recommended during design to minimize impacts to local businesses. The roundabout would slightly decrease traffic mobility along US 101 Business from Warrenton towards Astoria as traffic would need to navigate around the roundabout to make the eastbound to northbound movement. However, the projected mobility is within 10 percent of the mobility standard, and the increased visibility and navigability of the roundabout, along with acceptable mobility on the remaining three legs, provide benefits for the intersection that outweigh the decreased mobility for the east-north movement. Roundabouts can be a barrier to pedestrians and bicyclists due to the increased number of lane crossings. However, adequate right of way exists to implement pedestrian and bicycle infrastructure, crosswalks and proper navigations, which would improve conditions over what exists today.

Cost Estimate

The cost estimate includes curbs, gutters, sidewalks, drainage, new roadway, illumination and concrete islands, but does not include right of way for property acquisition and encroachments (Table 4). The roundabout, while not contingent upon the roadway cross section, would be best implemented after the three lane cross section is constructed.

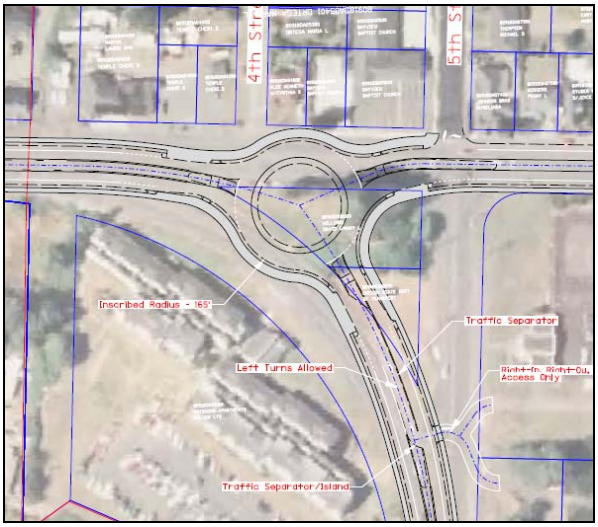
TABLE 4
Miles Crossing Roundabout Cost Estimate

Improvement	Estimated Cost (2009$)
Miles Crossing Roundabout	$2.78 million

OR 202/US 101 Business Intersection

There are several identified deficiencies at the OR 202 and US 101 Business intersection. First, sight distance is a concern, as turning vehicles from US 101 Business have trouble seeing oncoming traffic from OR 202. Second, traffic queues exceed available storage for the westbound left turning traffic traveling from OR 202 onto US 101 Business. Third, the intersection operates above the applicable mobility standard in the future (Year 2030) horizon year.

FIGURE 9
OR 202/US 101 Business Roundabout



Roundabout

The recommended improvement for this intersection is a roundabout (Figure 9). The roundabout option allows this intersection to meet the mobility standard, except for a slight mobility concern with the vehicles traveling westbound on OR 202 to southbound US 101 Business (within 10 percent of the standard). The safety benefits of a roundabout include reduced vehicle conflict points and a reduction in the severity of crashes due to lower vehicle travel speeds. There is adequate right of way available at this intersection to provide a separated bicycle and pedestrian path, and a roundabout could also be a "gateway" feature to enhance the center of the community.

The roundabout would impact access and circulation for some roads and driveways between Hanover Street and 7th Street, predominantly along the north side of OR 202. Please See Appendix E, Alternative Development and Evaluation for a more detailed discussion about access and circulation around the OR 202/US 101 Business roundabout. Suggestions to address circulation needs near the intersection include constructing a platted but unbuilt street (3rd Street) and relocating existing driveways to access affected properties.

Areas of Concern

The roundabout would require acquisition of one parcel with one business, removal of several mature trees (fir and deciduous) that are in the middle of the existing intersection, and the closure of 4th Street at OR 202. Access to businesses near the intersection could be adversely impacted due to their proximity to the intersection. Roundabouts can be a barrier to both pedestrians and bicyclists due to the increased number of lane crossings. However, adequate right of way exists for a bicycle and pedestrian path to the southwest, improving bicycle and pedestrian circulation over existing conditions.

Cost Estimate

The cost estimate includes curbs, gutters, sidewalks, drainage, new roadway, concrete islands, illumination, landscaping and retaining walls (Table 5). The cost estimate does not include right of way impacts for property acquisition and encroachments, or off-system developments to maintain circulation in the OR 202/US 101 Business intersection for properties whose access may be affected.

TABLE 5
OR 202/US 101 Business Roundabout Cost Estimate

Improvement	Estimated Cost (2009$)
OR 202/US 101 Business Roundabout	$3.79 million

Old Youngs Bay and Lewis and Clark River Bridges

The Old Youngs Bay and Lewis and Clark River Bridges are historic[3] structures that connect the communities of Miles Crossing and Jeffers Gardens to Astoria and Warrenton. They are also the alternate route for the New Youngs Bay Bridge and US 101. The following deficiencies on the bridges were mentioned repeatedly by all three advisory groups at both open houses.

- Narrow lanes restrict the size of trucks traveling in opposite directions
- The vertical rise on both structures limits the ability to see oncoming traffic
- There are many near misses for crashes, and vehicles often scrape the structure of the bridges by driving too closely
- The PAC suggested that there were numerous crashes, especially on the Lewis and Clark River Bridge
- United States Coast Guard personnel, located in Astoria, use the bridges to access the airport in Warrenton
- The area's emergency shelter and emergency food supplies are located in Warrenton
- Emergency vehicles have trouble driving across the bridges due to the narrow lanes
- There are no bicycle and pedestrian facilities on the Lewis and Clark River Bridge, and narrow sidewalks on the Old Youngs Bay Bridge, creating a disconnect between the Astoria River Trail and the Warrenton Trail System.

Environmental Review to Replace Old Youngs Bay and Lewis and Clark River Bridges

The project team recommends that an alternatives analysis and environmental review process start in the near-term for replacing both bridges. This work would include an alternatives analysis,: engineering background studying, environmental studies (noise, archaeological, historical, natural resources, floodplain, wetlands, and others), preliminary engineering, cost estimating, and precise mapping,

Areas of Concern

Existing deficient conditions of both bridges make this project a near-term priority. The bridges are historical structures, and replacement or enhancement of the bridges could impact residents in the Miles Crossing and Jeffers Gardens communities, as the bridges are the most direct way of accessing Astoria and Warrenton.

[3] The Old Youngs Bay Bridge is number 128 in the Historic American Engineering Record (HAER), and the Lewis and Clark River Bridge is HAER 127. Both were built in the early 1920s.

Cost Estimate

TABLE 6
Lewis and Clark River and Old Youngs Bay Bridges Cost Estimate

Improvement	Estimated Cost (2009$)
Lewis and Clark River and Old Youngs Bay Bridge Environmental Assessment	$1.3 million

Estimated costs to perform an environmental review and alternatives analysis for the replacement of the Lewis and Clark River and Old Youngs Bay Bridge were developed from previous similar work. The estimate includes environmental studies, engineering studies, preliminary engineering, cost estimating, and mapping. An environmental assessment process was assumed. The cost estimate includes a 30 percent contingency recognizing the site geography, proximity to Youngs Bay, and the historical significance of the surrounding area.

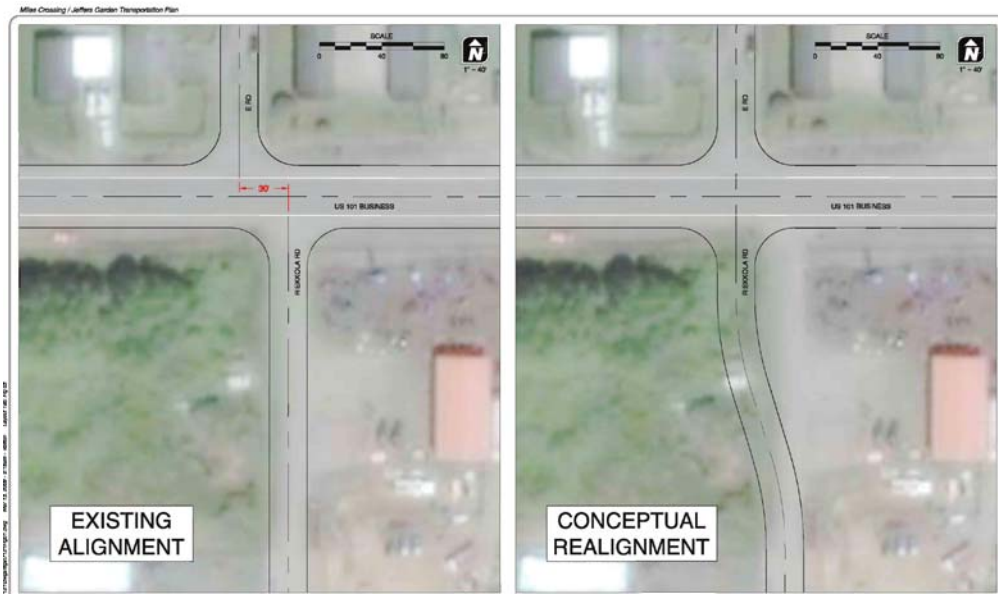
Access Management Strategies

The Access Management Strategy inventoried the existing accesses and street network in the study area and suggested strategies for ODOT and Clatsop County to preserve and improve mobility along US 101 Business. Constraints were first identified through the access inventory, and existing accesses were compared to the applicable state and county access spacing standards. A variety of Access Management Strategies are recommended throughout the study area, including the following.

Riekkola Road/E Road Intersection Offset

The current offset of Riekkola Road and E Road in the study area results in potential conflicts between left turning vehicles entering US 101 Business from the minor streets simultaneously, and motorists crossing from Riekkola Road to E Road, and vice versa. Figure 10 shows the current offset and possible realignment to address the concern.

FIGURE 10
Possible Realignment of Riekkola Road and E Road



Two-way Left Turn Lane

The center turn lane of the proposed cross section for US 101 Business would allow left-turning vehicles to enter and exit approaches and side streets in stages if necessary. The center lane would provide an opportunity to increase safety and travel times for through and turning vehicles.

Approach Width Modifications and Delineation

The curb and gutter configuration of the proposed roadway would result in definition of driveways along US 101 Business, addressing existing open frontages and wide driveways. An absence of non-delineated driveways creates a safety hazard along the highway. ODOT guidelines for approach widths for the different types of properties are:

- Single family residential: 16 feet
- Commercial: 24 feet
- Industrial: 24 feet

For higher volume commercial and industrial properties, separate lanes for exiting and entering the property is recommended.

Shared Access and Crossover Easements

Shared access and parcel crossover easements would allow multiple properties to access US 101 Business. Usually shared access is located at the property line of two adjacent properties. Accesses and parcel crossovers would only be applied when properties along the highway are developed or redeveloped. Consolidating access or providing easements would increase the distance between access points, which would reduce conflict points and improve safety and operations on US 101 Business.

Property Subdivision and Partition

Upon development in the study area, it is possible some of the larger lots will be subdivided or partitioned into smaller parcels to accommodate additional land uses. These new properties will require access to the road network, which could increase the number of driveways on US 101 Business. The County and ODOT will review all development proposals to ensure they are consistent with spacing standards.

Alternate Access and Local Connectivity

Providing alternate access to properties and closing some of the existing approaches on US 101 Business would help achieve access management goals. Some properties on US 101 Business front a side road to US 101 Business. In cases where the frontage is on a private road, an easement is needed for alternate access. The County also has platted, but not constructed, roadways in the study area north of US 101 Business in the Jeffers Garden Community. If the streets and lots are developed, opportunities to remove driveways on the highway and provide alternative access on the minor street connection should be pursued by the County and ODOT.

Access Consolidation

Fourteen properties along US 101 Business have multiple driveways. There are opportunities to consolidate the driveways into one driveway for each property, which would reduce the number of driveways along US 101 Business.

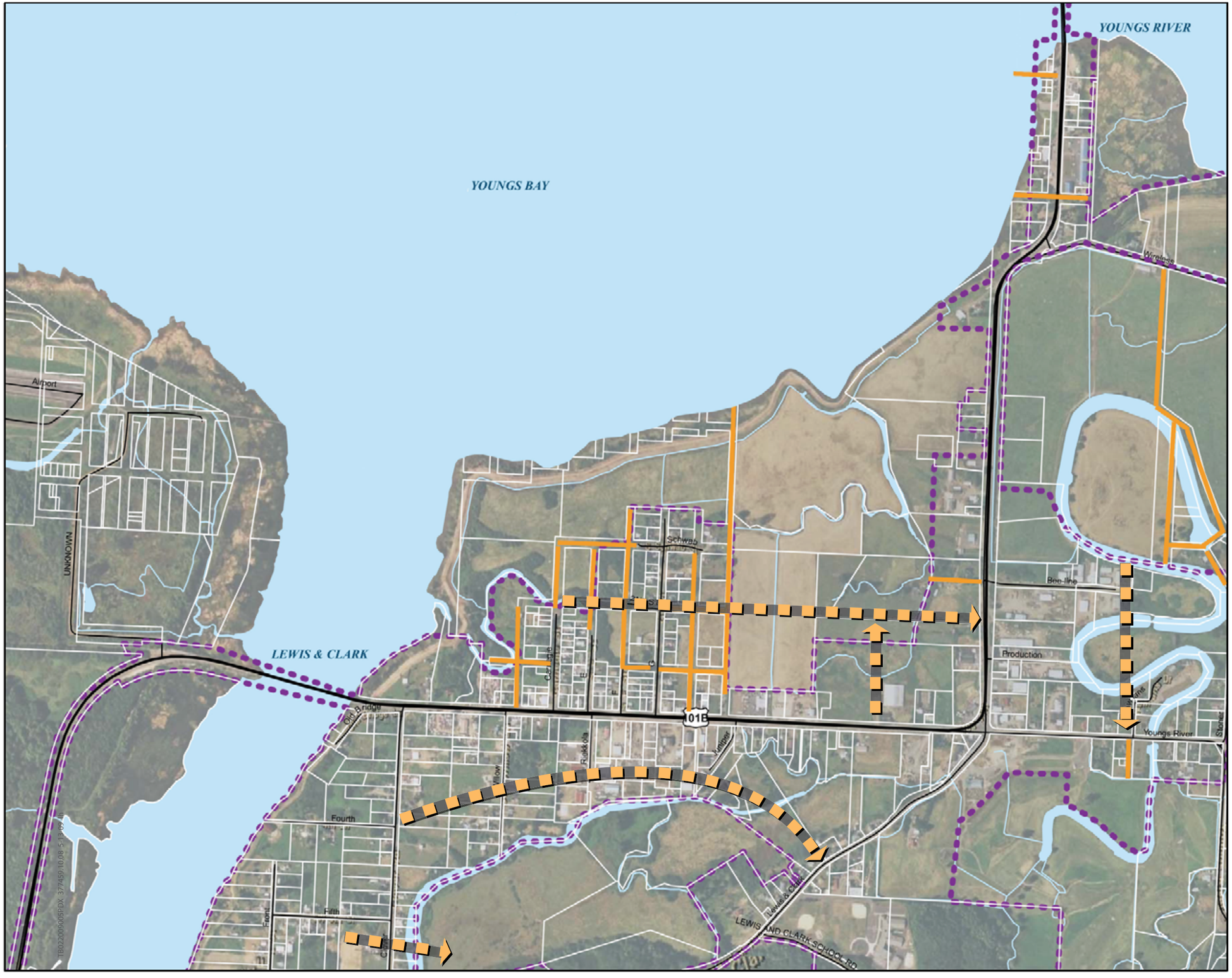
Ensure Adequate Sight Distance

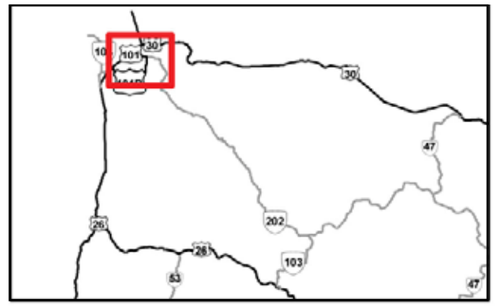
In some driveways, a vehicle stopped waiting to turn onto US 101 Business cannot see far enough in one or both directions to determine a safe gap to maneuver onto the highway. Strategies to improve sight distance include trimming vegetation, modifying existing buildings obstructing sight distance, altering the grade of driveways to match the highway, increasing building setbacks, and enforcing no parking along US 101 Business.

These access management strategies could be implemented when parcels are development or redeveloped in the study area. Detailed access management strategies can be found in Appendix F, Access Management Strategy.

Local Connectivity Recommendations

Local street connectivity is limited throughout the study area, requiring that local trips use the highway even if traveling short distances. Limited environmental data were available to inform the project team where constraints to locating new roads exist. Therefore, the project team did not prepare proposed alignments for local road connections, but identified general connections. These general connections are shown in Figure 11 and would be constructed upon development or redevelopment of parcels either through easements or on existing county right-of-way as appropriate.





LEGEND

- Study Intersections
- Study Area Boundary
- UGB Boundary
- Water Bodies
- Local Connectivity Alternatives
- Unbuilt Platted Streets

Study Intersections

1. **US101 Business & Fort Clatsop Road / Airport Lane**
2. **US101 Business & Clover Lane**
3. **US101 Business & Youngs River Road / Lewis and Clark Road**
4. **US101 Business & Wireless Road**
5. **OR 202 & US 101 Business**

Notes:

1. Local Roads, Hydrography and Parks from Clatsop County (4/2008)
2. Taxlot Boundaries from Clatsop County (9/2007)
2. Highway Data,from ODOT (4/2008) ,
2. UGB Boundary from ODOT (1/1996)

- Aerial photo from 2007: may not reflect current development

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Feet

FIGURE 11

Local Connectivity Recommendations

Miles Crossing/Jeffers Garden Transportation Plan

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4 IMPLEMENTATION

Conceptual Level Cost Estimates

The cost to design and construct the various improvement concepts was estimated at a planning level for the recommended alternatives. The total sum for recommended improvements is approximately $15.06 Million (2009 dollars). Table 7 below shows the breakdown of costs for each of the project alternatives.

TABLE 7
Improvement Concepts and Estimated Costs

Improvement Concept	Estimated Cost (2009$)
Miles Crossing Intersection Signage Improvements	$50,000
Airport Road Turn Lane	$350,000
Alternatives Analysis and Environmental Documentation for Lewis and Clark and Old Youngs Bay Bridge Replacements	$1,300,000
US 101Business North-South Three Lane Cross Section	$2,750,000
US 101 Business East-West Three Lane Cross Section	$4,040,000
OR 202/US 101Business Intersection Roundabout	$3,790,000*
Miles Crossing Intersection Roundabout	$2,780,000*
Total	**$15.06 Million**

*Does not include right-of-way acquisition costs

Based on the conceptual design of each alternative, a 40 percent contingency has been included in the construction cost estimate to account for potential unknowns typically identified during preliminary and final engineering design. The estimates are in 2009 dollars, and do not include right of way, potential environmental permitting, engineering design fees, or utility relocation costs. See Appendix G, Financial Plan and Cost Estimates for more detailed cost estimates of each improvement concept.

Funding

A variety of local, state, and federal funding sources can be explored to help fund the recommended improvements. Most of the federal and state programs are competitive and require clear documentation of the project needs, costs, and benefits. Local funding for the projects in this transportation plan would typically come from ODOT, Clatsop County, the Cities of Astoria and Warrenton and/or potential future bond or other local revenues. Other local funding sources might include grants and private funds. Please see Appendix G Financial Plan and Cost Estimates for a more detailed discussion of funding sources.

Table 8 summarizes potential public funding sources for the recommended improvements. Some of these funds are restricted to the type of improvements that qualify for assistance. Typically, state and federal funds require projects to comply with current Americans with Disabilities Act (ADA) guidelines for accessibility.

TABLE 8
Improvements and Possible Funding Sources

Improvement Concept	Phasing	Estimated Cost (2009$)	Potential Funding Sources
Miles Crossing Intersection Signage Improvements	Short Term	$50,000	STIP –Operations
US 101Business North-South Three Lane Cross Section	Upon Development/ Redevelopment (Medium Term)	$2,750,000	STIP – Modernization ODOT Bicycle and Pedestrian Program LID SDC/Developer Exactions Transportation Utility Fee
US 101 Business East-West Three Lane Cross Section	Upon Development/ Redevelopment (Medium Term)	$4,040,000	STIP – Modernization ODOT Bicycle and Pedestrian Program LID SDC/Developer Exactions Transportation Utility Fee
OR 202/US 101Business Intersection Roundabout	Medium Term	$3,790,000	City of Astoria Gas Tax STIP – Modernization ODOT Bicycle and Pedestrian Program
Airport Road Turn Lane and Deceleration Lane	Short Term	$350,000	City of Warrenton Gas Tax County Road District Funds SDC/Developer Exactions Transportation Utility Fee
Miles Crossing Intersection Roundabout	Long Term	$2,780,000	STIP – Modernization LID SDC/Developer Exactions Transportation Utility Fee
Alternatives Analysis and Environmental Documentation for Old Youngs Bay and Lewis and Clark Bridges	Short Term	$1,300,000	Federal Highway Bridge Replacement and Rehabilitation Program (From the Federal Transportation Bill Reauthorization) Oregon Bridge Delivery Partners (OTIA, phase III—all funds are currently programmed, but more funding may be authorized.)

STIP = Statewide Transportation Investment Program
LID = Local Improvement Districts
SDC = System Development Charges
OTIA = Oregon Transportation Investment Act

Phasing

It is not expected that the funds to construct all the proposed project improvements would be available at the same time or necessarily in the short-term. To address this, the project recommendations could be implemented in phases, beginning with any component that is stand-alone and that has an identified funding source.

The project team recommends that the improvements to the Airport Lane intersection, signage at the Miles Crossing intersection, and the environmental review to replace the Old Youngs Bay and Lewis and Clark Bridges be completed before the US 101 Business cross section is improved. Some components of the project can be funded by, or in association with, development or redevelopment of private properties. Sidewalks and related features, for example, are often required to be constructed and paid for by a property owner at the time of property redevelopment.

Next Steps

Recommendations in this Transportation Plan will be considered by Clatsop County, the City of Astoria, and the City of Warrenton for adoption within their Comprehensive Plan. Draft plan amendment language and staff reports for each jurisdiction are provided as Appendix H, Plan Amendments.

Additional design and engineering will be needed to construct any improvement concept identified in this plan. Design and engineering would occur when improvement concepts are selected for implementation through the state and city capital funding process. There will be opportunities for additional public input on the design of the improvement concepts.

5 Conceptual Design of Select Components

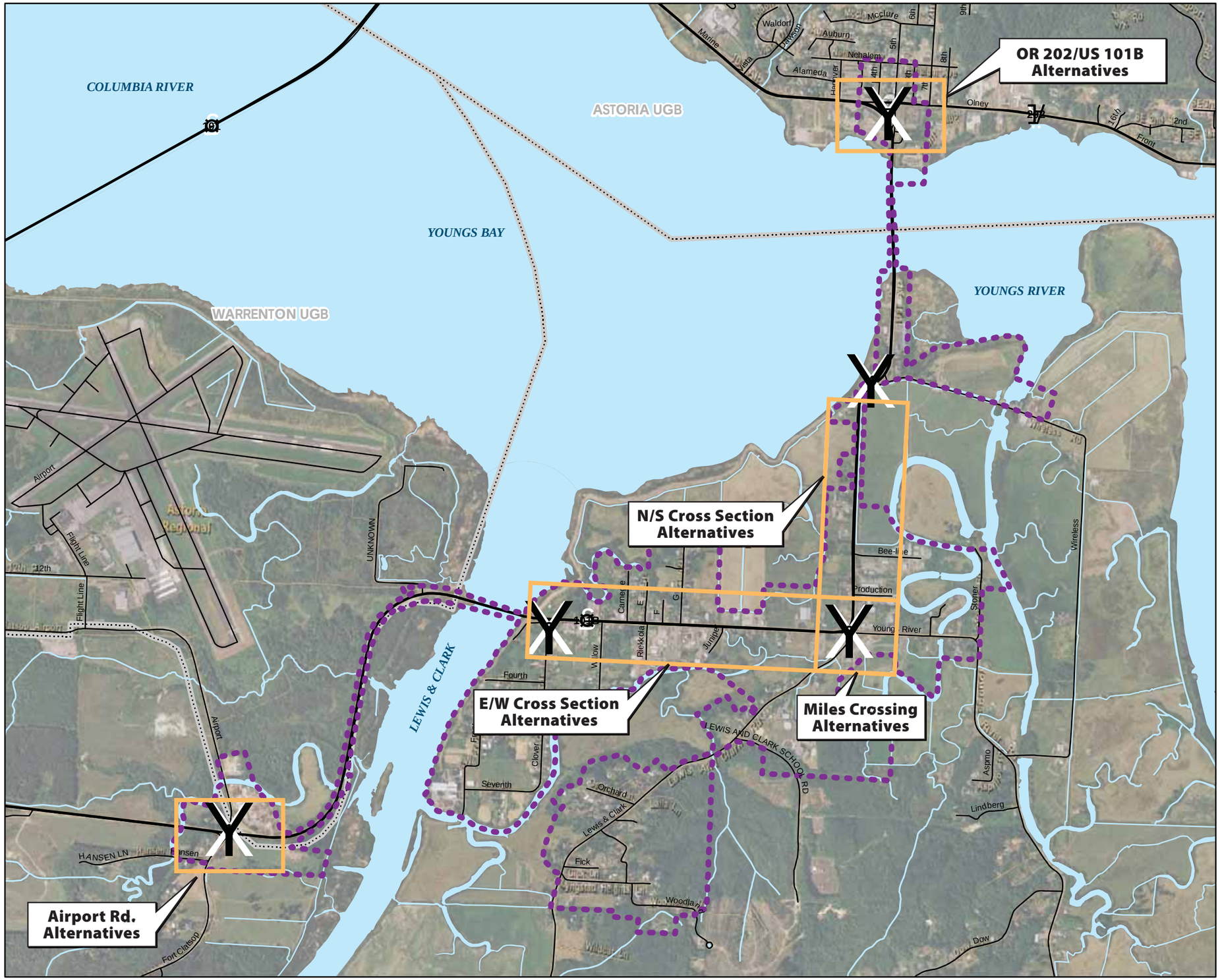
Figure 12 Reference Map of the Miles Crossing/Jeffers Garden Transportation Plan Area

Figure 13 Three Lane Traditional Cross Section

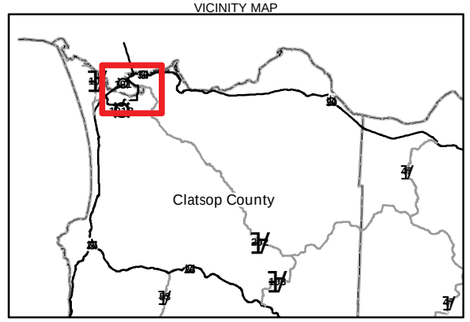
Figure 14 Airport Road Deceleration Lane for Right Turns and Southbound Left Turn Pocket

Figure 15 Miles Crossing Roundabout

Figure 16 OR 202/US 101 Business Roundabout



VICINITY MAP



LEGEND

- Study Intersections
- Study Area Boundary
- UGB Boundary
- Water Bodies

Study Intersections

1. **US101 Business & Fort Clatsop Road / Airport Lane**
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3. **US101 Business & Youngs River Road / Lewis and Clark Road**
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2. Highway Data from ODOT (4/2008)
2. UGB Boundary from ODOT (1/1996)
   - Aerial photo from 2007: may not reflect current development

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FIGURE 12
Reference Map
Miles Crossing/Jeffers Garden Transportation Plan

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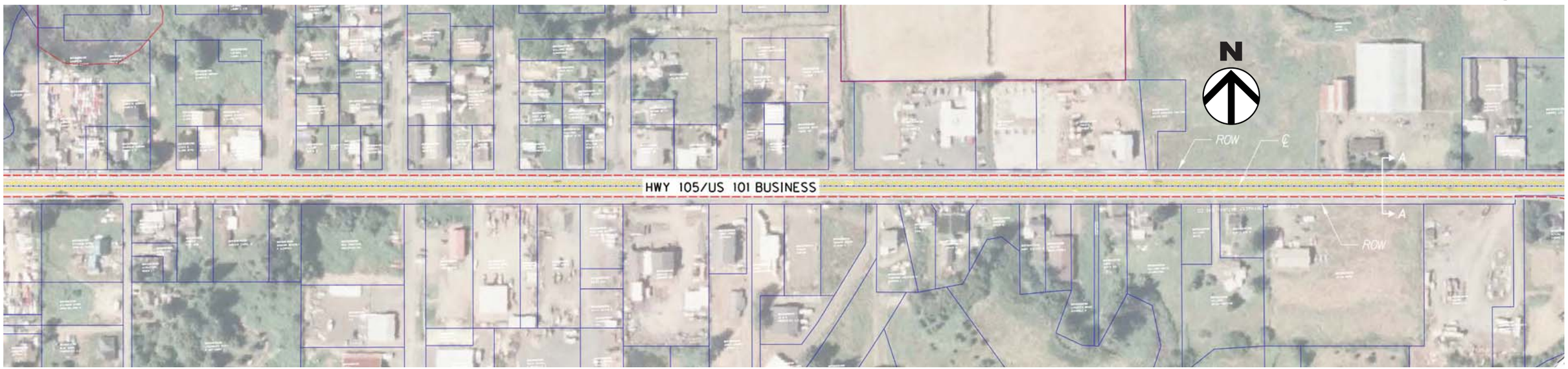
East-West Segment



North-South Segment

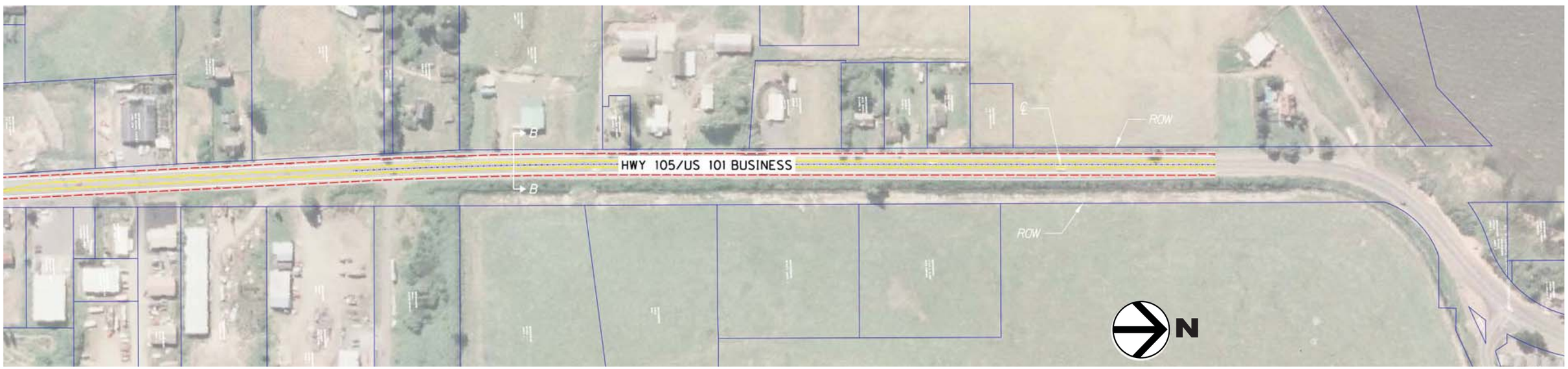


FIGURE 13
US 101 Business Cross Section
Miles Crossing/Jeffers Garden Transportation Plan

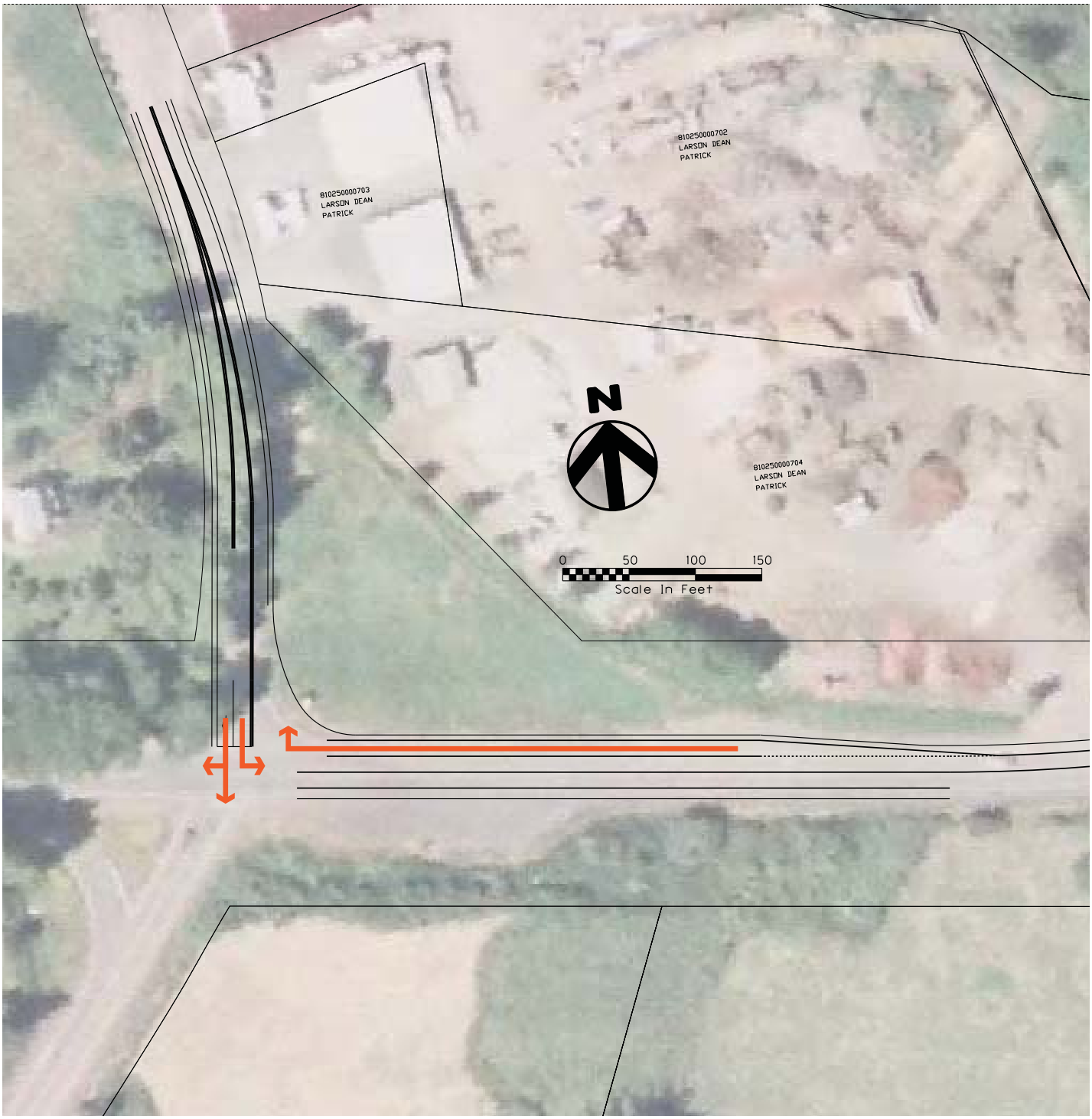
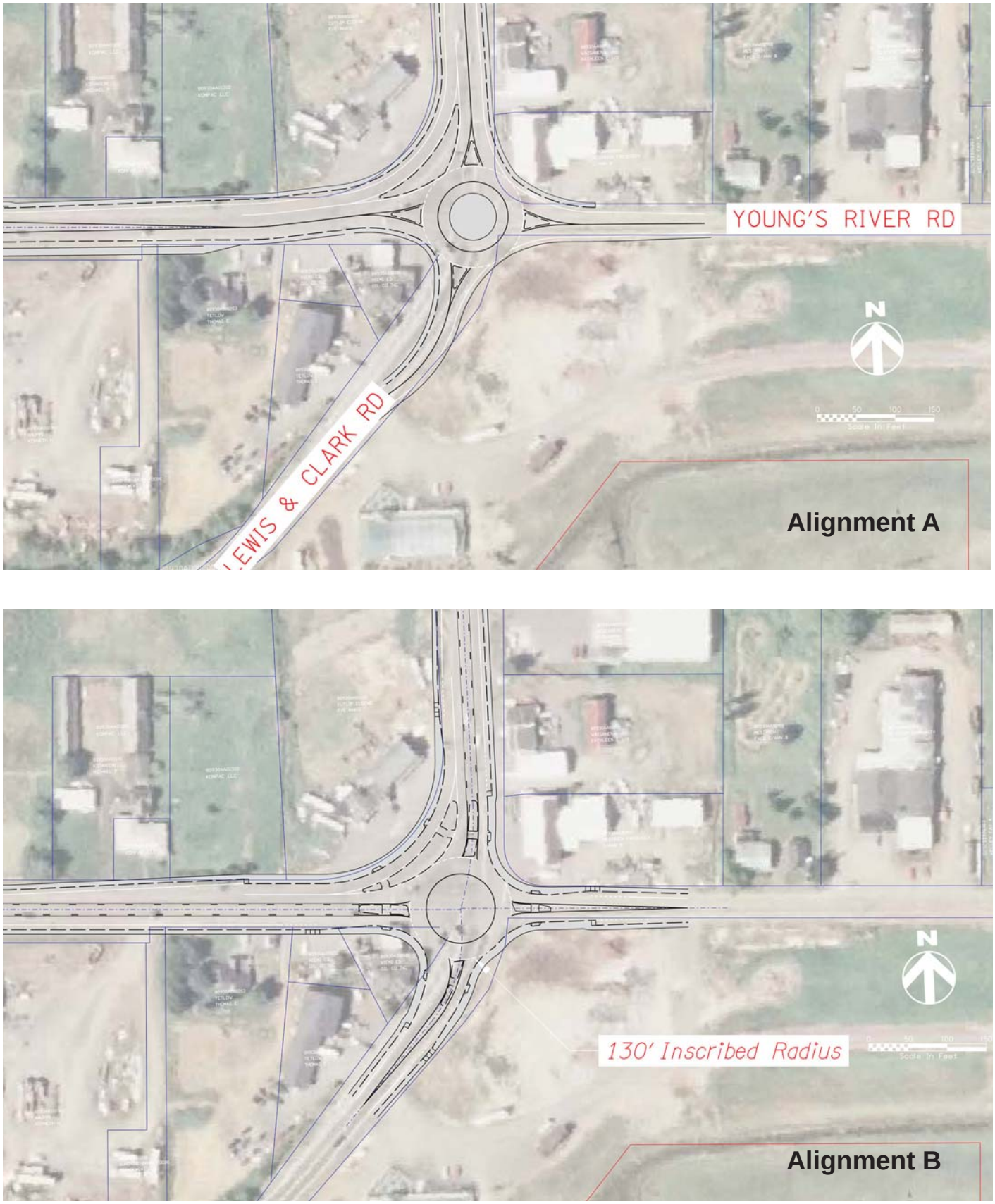


FIGURE 14
Airport Road Westbound Deceleration Lane for Right Turns and Southbound Left Turn Pocket
Miles Crossing/Jeffers Garden Transportation Plan



NORTH

0 50 100 150
Approximate Scale in Feet

FIGURE 15
Miles Crossing Roundabout
Miles Crossing/Jeffers Garden Transportation Plan

NORTH

0 50 100 150
Approximate Scale in Feet

FIGURE 16
OR 202/US 101 Business Intersection
Miles Crossing/Jeffers Garden Transportation Plan

APPENDIX A
Public Involvement

APPENDIX B
Plan and Policy Review

APPENDIX C

Traffic Methodology, Existing, and Future Conditions

APPENDIX D
Bridge Condition

APPENDIX E

Alternative Development and Evaluation

APPENDIX F
Access Management Strategy

APPENDIX G

Financial Plan and Cost Estimates

APPENDIX H.
PLAN AMENDMENTS